

REMARKS

Claims 5-13 are pending in the present application. Claims 5, 8 and 11 have been amended. Claims 4 and 14 have been canceled.

Claim Rejections-35 U.S.C. 102

Claim 4 has been rejected under 35 U.S.C. 102(e) as being anticipated by the Takada et al. reference (U.S. Patent No. 6,236,725). Claim 4 has been canceled. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

Claim Rejections-35 U.S.C. 103

Claims 5-7 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Takada et al. reference, in view of the Yoshida et al. reference (Japanese patent publication No. 7-264279). This rejection is respectfully traversed for the following reasons.

The echo canceller of claim 5 includes in combination an attenuator "that attenuates the sending signals containing echo noise so that an amplitude level of the echo noise matches an amplitude level of the pseudo echo signals, and that provides the attenuated sending signals to set subtracter as the sending signals for subtraction". Applicants respectfully submit that the prior art as relied upon by the Examiner does not make obvious these features.

The Examiner has acknowledged that the Takada et al. reference does not teach

the use of an attenuator. In order to overcome this acknowledged deficiency of the primarily relied upon prior art, the Examiner has characterized microphone amplifier 115 in Fig. 1 of the Yoshida et al. reference as an attenuator. The Examiner has alleged that "There is a great possibility and inherent that the controller (113) controls the amplitude of the signal produced by the ATT (115) to substantially match with the pseudo echo signal produced by ADF (112a), so that echo signal can be canceled completely" (our emphasis added). The Examiner has alleged that it would have been obvious to utilize the teaching of the Yoshida et al. reference into the teaching of the Takada et al. reference, in order to control the amplitude of the signal produced by the ATT (115) to substantially match with the pseudo echo signal produced by the ADF (112a), so that the echo signal can be canceled completely. Applicants respectfully disagree for the following reasons.

As emphasized in the paragraph bridging pages 6-7 of the Amendment dated July 9, 2003, element 115 in Fig. 1 of the Yoshida et al. reference is an amplifier, not an attenuator. Particularly, microphone amplifier 115 in Fig. 1 of the Yoshida et al. reference has two kinds of gain settings based on the GAIN CONT signal as provided from controller 113. A first gain setting corresponds to speaker amplifier 108 and speaker 109, and the second gain setting corresponds to receiver amplifier 110 and receiver 111. Accordingly, once the gain settings are set by controller 113, amplifier 115 accomplishes an amplifying function.

Accordingly, by definition microphone amplifier 115 of the Yoshida et al.

reference is not an attenuator, and thus cannot be interpreted as the attenuator of claim 5. That is, since microphone amplifier 115 of the Yoshida et al. reference by definition amplifies the microphone sending signal, microphone amplifier 115 **does not attenuate** sending signals containing echo noises "so that an amplitude level of the echo noise matches an amplitude level of the pseudo echo signals", and **does not provide attenuated sending signals** to a subtracter as sending signals for subtraction, as featured in claim 5.

As noted above, Applicants argued beginning on page 6 of the Amendment dated July 9, 2003, that element 115 is not an attenuator. The Examiner has however failed to take note of and acknowledge this argument in the current Office Action dated August 27, 2003. Applicants therefore respectfully submit that the Office Action dated August 27, 2003, is therefore incomplete and improper.

As also emphasized on page 7 of the Amendment dated July 9, 2003, the prior art as relied upon by the Examiner does not appear to specifically recognize that echo noise mixed with sending signals may have comparatively very high amplitude, due to microphone or loud speaker volume, and that the amplitude of the echo noise may greatly exceed the amplitude of the pseudo echo noise. In such a case, the echo noise mixed within the sending signals cannot be eliminated using the pseudo echo noise, because the amplitude of the echo noise is too great. Applicants respectfully note that the Examiner has not specifically established that the prior art references recognize this problem, and that the prior art particularly controls attenuation of sending signals

responsive to this problem. This should be especially clear, because element 115 in Fig. 1 of the Yoshida et al. reference is an amplifier, not an attenuator. The Yoshida et al. reference as relied upon by the Examiner does not consider or suggest attenuation. The mere suggestion by the Examiner that there is "a great possibility and inherent" that controller 113 of the Yoshida et al. reference controls amplitude of the signal produced by element 115, does not change the fact that element 115 is an amplifier, not an attenuator.

Accordingly, Applicants respectfully submit that the echo canceller of claim 5 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 5-7, is improper for at least these reasons. **If this rejection is to be maintained, the Examiner is respectfully requested to establish on the record why amplifier 115 in Fig. 1 of the Yoshida et al. reference should be interpreted as an attenuator, and how the Yoshida et al. reference would motivate one of ordinary skill to attenuate microphone sending signals.**

Claims 8-10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Takada et al. reference in view of the Yoshihama et al. reference (Japanese patent publication No. 8-279777). This rejection is respectfully traversed for the following reasons.

The Examiner has acknowledged that the Takada et al. reference does not teach an amplifier that is used to amplify pseudo echo signals so that the amplitude level of

the pseudo echo signal is matched to that of the echo noises. In order to overcome this acknowledged deficiency of the Takada et al. reference, the Examiner has alleged that the Yoshihama et al. reference teaches an echo canceller that includes an adaptive digital filter, for eliminating echoes.

However, the Examiner has interpreted ring buffer 12 and echo estimator 11 in Fig. 3 of the Yoshihama et al. reference as an adaptive digital filter. Applicants respectfully submit that ring buffer 12 and echo estimator 11 are not an adaptive digital filter as suggested by the Examiner. It is Applicants' understanding that a ring buffer acts as a continuous ring from which old data is removed to make way for newer data. Applicants respectfully submit that the Examiner has misinterpreted the Yoshihama et al. reference, and that this rejection based on the Yoshimada et al. reference is therefore improper. Accordingly, Applicants respectfully submit that the echo canceller of claim 8 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 8-10, is improper for at least these reasons.

Claims 11 and 13 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Takada et al. reference in view of the Fujisaki et al. reference (Japanese patent publication No. 62-269451). Claim 12 has been rejected as being unpatentable over the Takada et al. reference in view of the Fujisaki et al. reference, in further view of the Hemkumar et al. reference (U.S. Patent No. 6,212,273).

Allowable Subject Matter

Applicants respectfully note the Examiner's acknowledgment that claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Although Applicants do not necessarily concede that the above noted rejections of claims 11-13 are proper, claim 11 has been amended to be in independent form as including the features of base claim 4 and dependent claim 14. This Amendment has been made merely to advance prosecution of the present application. Accordingly, the Examiner is respectfully requested to acknowledge that claims 11-3 are allowed.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.117 and 1.136(a), the Applicants hereby petition for an extension of three (3) months to February 27, 2004, for the period in which to file a response to the outstanding Office Action. The required fee of \$950.00 is to be charged to Deposit Account No. 50-0238.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

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